What is claimed is:

1. A micro-array substrate for a biopolymer, wherein a pair of two conduction paths connected to a direct-current or alternating-current source are installed on the substrate, in a part of a conduction path pattern is arranged the two conduction paths in proximity to each other to a degree such that an electric field distribution between the conduction paths becomes locally stronger, and probe molecules for biopolymer detection are immobilized on the conduction paths or close to its proximity part.

2. A micro-array substrate for a biopolymer, wherein a pair of two conduction paths connected to a direct-current or alternating-current source are installed on the substrate, in a part of a conduction path pattern is arranged the two conduction paths in proximity to each other to a degree such that an electric field distribution between the conduction paths becomes locally stronger, and probe molecules for biopolymer detection are immobilized on the conduction paths of its proximity part in an opposed substrate arranged opposite to said substrate, or close to its proximity part.

3. A micro-array substrate for a biopolymer according to claim 1 or 2, having two or more of said proximity parts.

4. A micro-array substrate for a biopolymer according to any one of claim 1 through claim 3, wherein said substrate is a glass, a plastic, or a ceramic, and said two conduction paths are formed on the substrate by means of etching or printing.

5. A micro-array substrate for a biopolymer according to any one of claim 1 thorough claim 4, wherein said conduction paths are insulated from a solution in areas other than an area immobilized with said probe molecules.

6. A micro-array substrate for a biopolymer according to any one of claim 1 through claim 5, having an electrode for detecting the presence/absence of hybridization after hybridization, separately from said conduction paths.

7. A biopolymer hybridization device comprising a micro-array substrate for biopolymers according to any one of claim 1 through claim 6, and a power source for applying either an AC voltage or DC voltage to two conduction paths set on said substrate, wherein

a voltage is applied from this power source to said conduction paths to generate an electric field, so that a sample biopolymer target contained in a solution on said substrate can be subjected to dielectrophoresis or electrophoresis, along this electric field.

8. A biopolymer hybridization device according to claim 7, wherein a cover substrate formed from a transparent material is provided opposite to a substrate surface set with said conduction paths, so that fluorescence from a hybridized biopolymer with fluorescent labeling can be observed through this cover substrate.

9. A biopolymer hybridization device according to claim 7, wherein said conduction paths are formed on a cover substrate formed from a transparent material, so that fluorescence from the hybridized biopolymer with fluorescent labeling can be observed from the back face of this cover substrate.

10. A method of performing hybridization of a biopolymer by using the device according to any one of claim 7 through claim 9, comprising applying an alternating voltage or a direct voltage output from said power source between said conduction paths, to generate an electric field, so that a sample biopolymer target that is spontaneously dispersed in a solution is concentrated in the vicinity of the conduction paths by dielectrophoresis or electrophoresis.

11. A hybridization method for a biopolymer according to claim 10, comprising detecting said sample biopolymer target by means of fluorescent signals or electrical current value, after hybridization.